

DaimlerChrysler AG

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Information system in a vehicle

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The invention relates to an information system in a vehicle in accordance with the precharacterizing clause of claim 1.

10 EP 0 699 895 B1 describes a vehicle navigation system having a CD player having a variable rotational speed. Owing to the fact that the drive mechanism of the CD player is driven at a variable speed, data can be read from the CD at a variable speed.

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JP 2003035543 A describes a vehicle navigation system having a storage medium, in the case of which it is determined, by means of map-matching via a digital map, whether the road currently being used is paved. If it
20 is determined that the road currently being used has not been paved, access to the storage medium of the vehicle navigation system is blocked.

JP 2003014467 A describes a vehicle navigation system
25 having a storage medium, in the case of which the storage medium is equipped with a vibration sensor. The speed of the read access to the storage medium is changed as a function of the detected vibrations.

30 One object of the present invention is to specify an improved information system which allows for efficient write access to the storage medium of the information system.

35 The invention achieves this object by providing an information system having the features of patent claim 1.

Advantageous developments of the invention are

specified in the dependent claims.

It is particularly advantageous that, owing to the invention, rapid writing of data to the storage medium
5 in the information system is made possible if a standstill state of the vehicle is determined. As a result, full flexibility is maintained when writing data in the standstill state and/or during the movement of the vehicle, writing being carried out more rapidly
10 and therefore more cost-effectively in the case of writing operations during the standstill state. At the same time, it is ensured that the storage medium is not damaged by vibrations during a writing operation.

15 The information system optionally comprises a navigation system. In one advantageous embodiment of the invention, the map data for the navigation system are stored on the storage medium and are read from the storage medium during operation of the navigation
20 system.

The operating software of the information system and/or the navigation system can optionally be stored on the storage medium. The operating software may comprise,
25 for example, data relating to the control panel of the information system. In a further advantageous embodiment of the invention, data from applications of the information system, for example, a text-to-speech application, are stored on the storage medium.

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In one further advantageous embodiment of the invention, the storage medium is in the form of a hard disk. Data can be written to the hard disk at at least two different speeds, the higher speed being provided
35 for the writing operation when the vehicle is at a standstill. In this manner, large quantities of data can be written to the hard disk in a short period of time. For this purpose, the information system may

optionally comprise a CD drive and/or a DVD drive. Data from a CD and/or DVD can then be transferred rapidly to the hard disk and stored on it. In this case, it is advantageous that the standstill state of the vehicle
5 is checked in order to avoid damage to the hard disk owing to vibrations during the writing operation.

The second writing speed provided allows for a writing operation to the storage medium at a lower speed. This
10 writing operation at the lower writing speed can also be carried out if the vehicle is moving.

In the drawing:
figure 1 shows a schematic illustration of an example
15 of an information system in a vehicle.

The information system 10 in a vehicle comprises a storage medium 20 for storing data, a drive mechanism 30 for driving the storage medium and a control device
20 40 for controlling the drive mechanism.

In one advantageous embodiment, the information system 10 comprises at least one sensor 80 for detecting sensor data. The at least one sensor 80 is, for
25 example, in the form of a speed sensor, a sensor for detecting the selector lever setting and/or in the form of a sensor for detecting the setting of the handbrake or footbrake.

30 In one further advantageous embodiment, the information system 10 is connected to the at least one sensor via a data bus such that the information system 10 can receive the sensor data via the data bus.

35 The information system 10 optionally comprises a navigation system having a computer 50, for example, for calculating the route, an output unit 60, for example for outputting routing information, a position

determination unit 70, for example a GPS unit, and an input unit 90, for example for inputting the destination. In one advantageous embodiment of the invention, the map data for the navigation system are
5 stored on the storage medium 20 and are read from the storage medium during operation of the navigation system.

The operating software of the information system 10
10 and/or the navigation system can optionally be stored on the storage medium 20. The operating software may comprise, for example, data relating to the control panel of the information system 10. In one further advantageous embodiment of the invention, data from
15 applications of the information system 10, for example, a text-to-speech application, are stored on the storage medium.

In one further advantageous embodiment of the
20 invention, the storage medium 20 is in the form of a hard disk. Map data for the navigation system can be stored on this hard disk and are read from the hard disk during driving operations. The advantage in this embodiment consists in the fact that the map data for
25 the navigation system can easily be updated. For example, new map data can be transferred to the hard disk via an optionally provided CD drive and/or DVD drive in order to update the map data stored thereon. This requires writing operations to the hard disk. The
30 speed of the writing operation can be altered via the control unit 40 of the drive device 30. In this case, when the vehicle is known to be at a standstill, a high writing speed is provided such that large quantities of data can be stored on the hard disk within a short
35 period of time. This relates to, for example, an update operation of the map data on the hard disk which is carried out in a workshop. Alternatively, or in addition, this update operation at the rapid writing

speed can also be carried out, for example, by the driver when the vehicle is at a standstill.

It is advantageous that writing of data to the hard disk is also possible if the vehicle is moving. If it is determined via the at least one sensor 80 that the vehicle is moving, a writing operation to the hard disk is possible at a lower speed than when the vehicle is at a standstill. For relatively small quantities of data, it is therefore still possible to transfer data from a CD or a DVD in an acceptable period of time. It is also advantageous that it is also possible to transfer relatively large quantities of data in this manner, but a longer time span is required for this purpose in comparison with the storage operation to the hard disk when the vehicle is at a standstill owing to the lower writing speed.

In one further advantageous embodiment of the invention, measures for error correction are provided, in particular for writing operations while the vehicle is moving.

In one further advantageous embodiment of the invention, a check is carried out, prior to a certain quantity of data being transferred to the hard disk, to ascertain whether the state of charge of the battery allows for the transfer operation of the determined quantity of data to be brought completely to an end. The state of charge of the battery can be transmitted to the information system, for example, via the data bus. If the state of charge of the battery is not sufficiently high, the transfer operation is, for example, not even started and/or is moved to a later point in time. Alternatively or in addition, it is possible to continuously check the state of charge of the battery during the data transfer to the hard disk and, in the event of a threatened termination of the

transfer owing to a low state of charge of the battery,
to maintain the original database on the hard disk. In
this case, the user and/or driver, for example, when
restarting the vehicle with a sufficiently high state
5 of charge of the battery, can be informed of the fact
that a data transfer operation to the hard disk of the
information system has been interrupted. It is
optionally possible for the user and/or driver to be
given the option of restarting the transfer operation
10 and/or of continuing on from the point at which it was
interrupted.